

- 5 1. A cooled gas turbine vane comprising:
- a first platform and a second platform in spaced relation with said second platform radially outward from said first platform;
- 10 an airfoil extending radially between said first and second platforms, said airfoil having a leading edge and trailing edge, each generally perpendicular to said first and second platforms, and a first wall and second wall extending between said leading edge and said trailing edge;
- 15 one or more cooling circuits disposed between said first and second walls, each of said cooling circuits having:
- a row of first pedestals extending generally radially outward, said first pedestals extending between said first wall and said second wall and having a first diameter;
- 20 one or more rows of second pedestals extending generally radially outward, said second pedestals extending between said first wall and said second wall, and having a second diameter, said second pedestals spaced a first distance axially from said first pedestals and offset radially a second distance from said first pedestals;
- 25 one or more rows of third pedestals extending generally radially outward, said third pedestals extending between said first wall and said second wall, and having a third diameter, said third pedestals spaced a third distance axially from said second pedestals and offset radially a fourth distance from said second pedestals;
- 30 one or more rows of axial ribs, said ribs generally bisecting said rows of first, second, and third pedestals, said ribs having an upper wall and a
- 35 a plurality of axially extending ribs, said ribs generally bisecting said rows of first, second, and third pedestals, said ribs having an upper wall and a

- 5 lower wall in spaced relation thereby forming a rib thickness
 therebetween, said ribs having at least one recessed cavity in said upper
 wall and said lower wall;
- 10 wherein pedestals positioned immediately adjacent said recessed cavity of
 said ribs are separated from said recessed cavity by a cavity passageway.
2. The cooled gas turbine vane of Claim 1 wherein said first diameter of said first
pedestals is at least 0.060 inches.
- 15 3. The cooled gas turbine vane of Claim 1 wherein said second diameter of said second
pedestals is at least 0.040 inches.
- 20 4. The cooled gas turbine vane of Claim 1 wherein said third diameter of said third
pedestals is at least 0.040 inches.
5. The cooled gas turbine vane of Claim 1 wherein said second diameter of said second
pedestals is equal to said third diameter of said third pedestals.
- 25 6. The cooled gas turbine vane of Claim 1 wherein said first diameter is greater than said
second diameter and said third diameter.
7. The cooled gas turbine vane of Claim 1 wherein said first distance is greater than said
second distance.
- 30 8. The cooled gas turbine vane of Claim 1 wherein said third distance is greater than said
fourth distance.
- 35 9. The cooled gas turbine vane of Claim 1 wherein said rib thickness is at least 0.060
inches.

10. The cooled gas turbine vane of Claim 9 wherein said recessed cavity extends into said rib a maximum of 25% of said rib thickness.

10 11. The cooled gas turbine vane of Claim 1 wherein said cavity passageway is equal to the diameter of said adjacent pedestal.

12. The cooled gas turbine vane of Claim 1 wherein said pedestals positioned immediately adjacent said recessed cavity is one or more second pedestals.

15 13. The cooled gas turbine vane of Claim 1 wherein said pedestals positioned immediately adjacent said recessed cavity is one or more third pedestals.

14. A cooling circuit disposed between a first wall and a second wall of a gas turbine airfoil, said cooling circuit comprising:

20 a row of first pedestals extending generally radially outward, said first pedestals extending between said first wall and said second wall and having a first diameter;

25 one or more rows of second pedestals extending generally radially outward, said second pedestals extending between said first wall and said second wall, and having a second diameter, said second pedestals spaced a first distance axially from said first pedestals and offset radially a second distance from said first pedestals;

30 one or more rows of third pedestals extending generally radially outward, said third pedestals extending between said first wall and said second wall, and having a third diameter, said third pedestals spaced a third distance axially from said second pedestals and offset radially a fourth distance from said second pedestals;

a plurality of axially extending ribs, said ribs generally bisecting said rows of first, second, and third pedestals, said ribs having an upper wall and a lower wall in spaced relation thereby forming a rib thickness therebetween, said ribs having at least one recessed cavity in said upper wall and said lower wall;

wherein pedestals positioned immediately adjacent said recessed cavity of said ribs are separated from said recessed cavity by a cavity passageway.

15. The cooled gas turbine vane of Claim 14 wherein said first diameter of said first pedestals is at least 0.060 inches.

16. The cooled gas turbine vane of Claim 14 wherein said second diameter of said second pedestals is at least 0.040 inches.

17. The cooled gas turbine vane of Claim 14 wherein said third diameter of said third pedestals is at least 0.040 inches.

18. The cooled gas turbine vane of Claim 14 wherein said second diameter of said second pedestals is equal to said third diameter of said third pedestals.

19. The cooled gas turbine vane of Claim 14 wherein said first diameter is greater than said second diameter and said third diameter.

20. The cooled gas turbine vane of Claim 14 wherein said first distance is greater than said second distance.

21. The cooled gas turbine vane of Claim 14 wherein said third distance is greater than said fourth distance.

5 22. The cooled gas turbine vane of Claim 14 wherein said rib thickness is at least 0.060 inches.

23. The cooled gas turbine vane of Claim 22 wherein said recessed cavity extends into said rib a maximum of 25% of said rib thickness.

10 24. The cooled gas turbine vane of Claim 14 wherein said cavity passageway is equal to the diameter of said adjacent pedestal.

15 25. The cooled gas turbine vane of Claim 14 wherein said pedestals positioned immediately adjacent said recessed cavity is one or more second pedestals.

26. The cooled gas turbine vane of Claim 14 wherein said pedestals positioned immediately adjacent said recessed cavity is one or more third pedestals.

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